AIWA®

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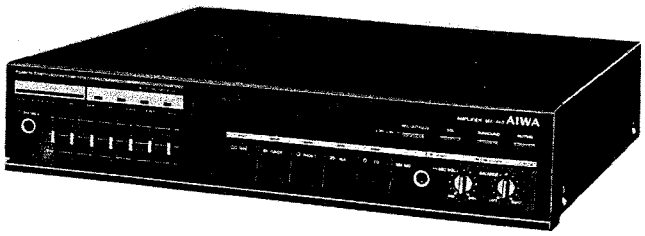
SERVICE MANUAL

STEREO INTEGRATED AMPLIFIER

MODEL NO.

MX-440



TYPE. HB,UB,EB,KB,GB,ZB

SPECIFICATIONS

[Power amplifier]

Effective output power:
MX-440E, K, Z, G
35 W+35 W (8 ohms, T.H.D. 1%, 1 kHz)
MX-440H
50 W+50 W (8 ohms, EIAJ 10%, 1 kHz)
MX-440U (FTC Rule)
35 Watts per channel, Min. RMS at 8 ohms, from 40 Hz—20 kHz, with no more than 0.2% Total harmonic Distortion.

Total harmonic distortion: 0.02% (1 kHz)

Output bandwidth: 20 Hz to 50 kHz (less than 0.4%) [Both channels driven, 8 ohms]

Frequency response: 20 Hz to 50 kHz (+1/−3 dB)

[Preamplifier]

S/N ratio: IHF A curve short circuited
MX-440H, U, G, E, K, Z

PHONO	90 dB
TUNER, AUX, TAPE	90 dB

Input jacks (Sensitivity/ input impedance):
PHONO
190 mV/27 kohms
TUNER, AUX TAPE
150 mV/47 kohms
CD
200 mV/27 kohms
MIC
1 mV/10 kohms

Output jacks (Level/output impedance):
TAPE 130 mV/47 kohms
Headphones 8 ohms
Speakers 8 ohms

[Common]

Power requirements:
MX-440H
AC 120 V/220 V/240 V switchable, 50/60 Hz
MX-440U
AC 120 V, 50 Hz
MX-440E, Z
AC 220 V, 50/60 Hz
MX-440K, G
AC 240 V, 50/60 Hz

Power consumption:
MX-440G, E, K, Z
160 W (system total 180 W)
MX-440H
70 W (system total 90 W)
MX-440U
100 W (system total 120 W)

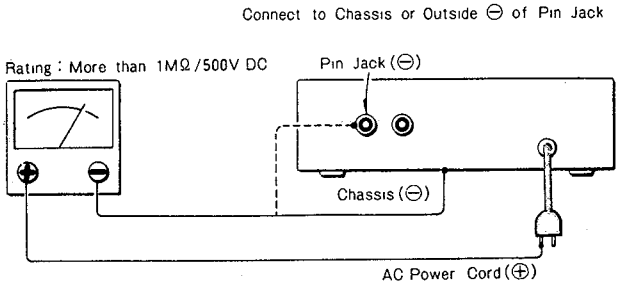
Dimensions: 330(W) ×71(H) ×314(D) mm
Weight: 4.0 kg

- Design and specifications are subject to change without notice.

Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of serivce.

1. **No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.**
2. **No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.**
3. **When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.**
4. **The following matters shall be maintained as they are, when repairing.**
   1) Soldering of lead-wire ends
      * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
   2) Wiring and holding of lead-wires with wire-clips and binders
   3) Materials of lead-wires
      * e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
   4) Location of all kinds of insulators
   5) Setting of voltage selector switch
      * Set the Voltage Selector Switch to 240V, 220V, or 120V, According to your Local Voltage.
5. **After repaired, the insulation resistance or leakage current shall be measured with 500 ± 5V D.C and shall be not less than 1MΩ.**

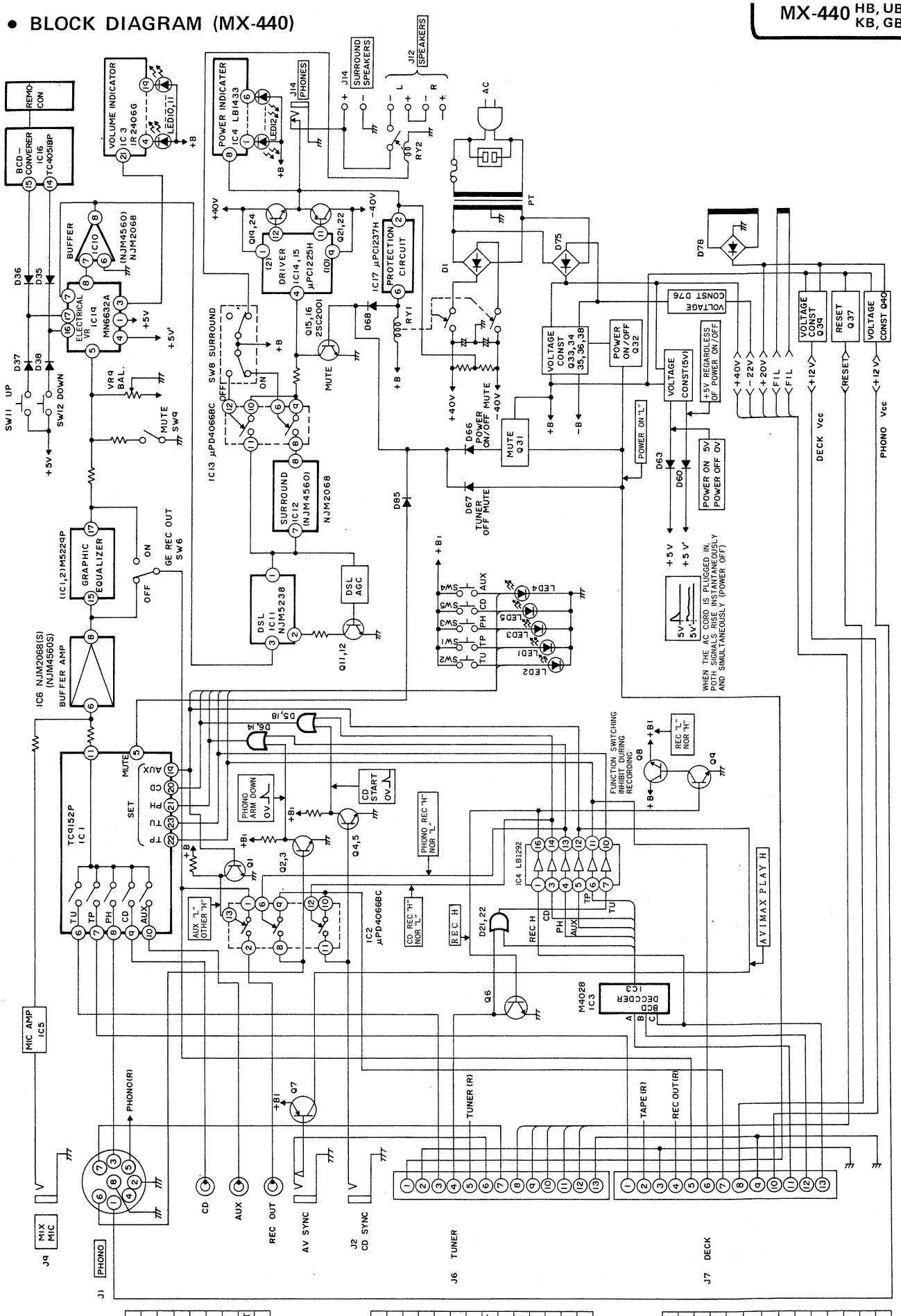
Measuring Point



6. **General instructions for mechanism repair**
   1) E-rings and poly slider washers shall be replaced with new ones, if once those have been removed. – No re-utilization due to unreliability.
   2) Regular spare-parts shall always be used for repair, because using irregular parts and tampering with the products shall cause deterioration, mulfunction and damage.

☆ **MEMO** ☆

• BLOCK DIAGRAM (MX-440)



J1 PHONO

1	+B
2	GND1
3	Lch
4	NC
5	Rch
6	SYNC
7	PLAYER START/CUT
8	GND2

J6 TUNER

1	POWER CONTROL
2	GND (SIG)
3	Lch
4	TU FUN
5	Rch
6	VTR TIMER
7	PLAYER START/CUT
8	+40V
9	-22V
10	+20V
11	FIL
12	FIL
13	GND (POWER)

J7 DECK

1	PB L
2	PB R
3	GND (SIG)
4	REC R
5	REC L
6	F-TAPE
7	SYNCRO
8	RESET
9	- (GND-POWER)
10	+(12V)
11	A
12	B
13	C

ELECTRICAL MAIN PARTS LIST

- +++ mark denotes a component of assembled part which part code is represented by a previously stated component.
- ★-mark means less required items and availabilities may be limited.

Ref. No.	Part No.	Description
=== IC ===		
	87-020-547	IC,LB1292
	87-020-131	IC,LB1433
	87-027-895	IC,M5218L
	87-020-619	IC,M5238L
	87-020-676	IC,M4028BP
	87-027-986	IC,NJM2068
	87-027-978	IC,TC9152P
	87-027-897	IC,UPC1225H
	87-020-680	IC,NJM2068(S)
	87-027-787	IC,UPC1237H
	87-027-554	IC,UPD4066BC
=== TRANSISTOR ===		
	89-502-465	FET 2SK 246GR
	89-110-155	TRANSISTOR,2SA1015,GR
	89-206-882	TRANSISTOR,2SB688
	89-210-153	TRANSISTOR,2SB1015
	89-309-456	TRANSISTOR,2SC945L,P
	89-318-155	TRANSISTOR,2SC1815,GR
	89-320-011	TRANSISTOR,2SC2001K
	89-407-182	TRANSISTOR,2SD718
	89-412-753	TRANSISTOR,2SD1275
	89-414-063	TRANSISTOR,2SD1406 OY
=== MAIN CIRCUIT BOARD SECTION ===		
PCB-A	*	MAIN CIRCUIT BOARD
⚠	★ 87-033-147	FUSE CLAMP
C1	★ 87-010-384	CAP,ELECT 25-100SME
C3	★ 87-010-378	CAP,ELECT 16-10SME
C4	★ 87-010-405	CAP,ELECT 50-10SME
C5	★ 87-010-401	CAP,ELECT 50-1SME
C6	★ 87-010-401	CAP,ELECT 50-1SME
C10	★ 87-010-378	CAP,ELECT 16-10SME
C15	★ 87-010-405	CAP,ELECT 50-10SME
C17	★ 87-010-404	CAP,ELECT 50-4.7SME
C18	★ 87-010-404	CAP,ELECT 50-4.7SME
C19	★ 87-010-378	CAP,ELECT 16-10SME
C20	★ 87-010-378	CAP,ELECT 16-10SME
C43	★ 87-018-040	CAP,CERA-SOL S 470P
C44	★ 87-010-404	CAP,ELECT 50-4.7SME
C45	★ 87-010-404	CAP,ELECT 50-4.7SME
C46	★ 87-018-044	CAP,CERA-SOL S 1000P
C47	★ 87-010-379	CAP,ELECT 16-22SME
C73	★ 87-010-403	CAP,ELECT 50-3.3SME
C74	★ 87-010-403	CAP,ELECT 50-3.3SME
C79	★ 87-010-263	CAP,ELECT 100/10V
C80	★ 87-010-263	CAP,ELECT 100/10V
C83	★ 87-010-401	CAP,ELECT 50-1SME
C84	★ 87-010-401	CAP,ELECT 50-1SME
C85	★ 87-010-378	CAP,ELECT 16-10SME
C86	★ 87-010-378	CAP,ELECT 16-10SME
C87	★ 87-010-401	CAP,ELECT 50-1SME
C93	★ 87-010-401	CAP,ELECT 50-1SME
C94	★ 87-010-401	CAP,ELECT 50-1SME
C97	★ 87-018-008	CAP,CERA-SOL S 8.2P
C98	★ 87-018-008	CAP,CERA-SOL S 8.2P
C120	★ 87-010-378	CAP,ELECT 16-10SME
C131	★ 87-018-042	CAP,CERA-SOL S 680P
C132	★ 87-018-042	CAP,CERA-SOL S 680P
C133	★ 87-010-404	CAP,ELECT 50-4.7SME
C134	★ 87-010-404	CAP,ELECT 50-4.7SME
C135	★ 87-010-378	CAP,ELECT 16-10SME
C136	★ 87-010-378	CAP,ELECT 16-10SME
C137	★ 87-018-012	CAP,CERA-SOL S 15P
C138	★ 87-018-012	CAP,CERA-SOL S 15P
C139	★ 87-010-405	CAP,ELECT 50-10SME
C140	★ 87-010-405	CAP,ELECT 50-10SME
C145	★ 87-010-401	CAP,ELECT 50-1SME
C146	★ 87-010-401	CAP,ELECT 50-1SME
C149	★ 87-018-044	CAP,CERA-SOL S 1000P
C150	★ 87-015-450	CAP,ELECT 220-25V BP
C152	★ 87-010-403	CAP,ELECT 50-3.3SME
C171	★ 87-010-263	CAP,ELECT 100/10V
C173	★ 87-010-383	CAP,ELECT 25-33SME
C174	★ 87-010-248	CAP,ELECT 220-10SME
C175	★ 87-010-402	CAP,ELECT 50-2.2SME
C176	★ 87-010-260	CAP,ELECT 47-25V SME
C177	★ 87-010-260	CAP,ELECT 47-25V SME
C178	★ 88-337-520	CAP,ELECT 470-50V
C179	★ 88-337-520	CAP,ELECT 470-50V
C180	★ 87-010-260	CAP,ELECT 47-25V SME
C181	★ 87-010-112	CAP,ELECT 100/16
C182	★ 87-010-040	CAP,ELECT 25-33 (105)
C183	★ 87-010-391	CAP,ELECT 35-10SME
C184	★ 87-010-036	CAP,ELECT 50-3.3 (105)
C185	★ 87-010-391	CAP,ELECT 35-10SME
C186	★ 87-010-389	CAP,ELECT 25-2200SME
C200	★ 87-018-047	CAP,CERA-SOL 0.01-16 (Z ONLY)
C201	★ 87-010-254	CAP,ELECT 6800-50
C202	★ 87-010-254	CAP,ELECT 6800-50
D1	87-020-144	DIODE DBA40C
D2	87-020-110	DIODE 1SS177
D3	87-020-110	DIODE 1SS177
D4	87-027-393	DIODE,ZENER HZ4C2
D5	87-020-110	DIODE 1SS177
D6	87-020-110	DIODE 1SS177
D11	87-020-110	DIODE 1SS177
D12	87-020-110	DIODE 1SS177
D13	87-020-110	DIODE 1SS177
D14	87-020-110	DIODE 1SS177
D15	87-020-110	DIODE 1SS177
D16	87-020-110	DIODE 1SS177
D17	87-020-110	DIODE 1SS177
D18	87-020-110	DIODE 1SS177
D21	87-020-110	DIODE 1SS177
D22	87-020-110	DIODE 1SS177
D25	87-020-110	DIODE 1SS177
D28	87-020-110	DIODE 1SS177
D45	87-020-110	DIODE 1SS177
D46	87-020-110	DIODE 1SS177
D47	87-020-110	DIODE 1SS177
D48	87-020-364	DIODE,ZENER HZ-2B3
D49	87-020-110	DIODE 1SS177
D50	87-020-110	DIODE 1SS177
D51	87-027-502	DIODE,ZENER 05Z3.9
D52	87-020-110	DIODE 1SS177
D66	87-020-110	DIODE 1SS177
D67	87-020-110	DIODE 1SS177
D68	87-020-110	DIODE 1SS177
D69	87-027-475	DIODE,ZENER HZ-6B1
D70	87-020-110	DIODE 1SS177
D71	87-020-110	DIODE 1SS177
D72	87-020-110	DIODE 1SS177
D73	87-020-110	DIODE 1SS177
D74	87-027-475	DIODE,ZENER HZ-6B1
D75	87-027-376	DIODE 1B4B41

CAPACITORS
No mark, U, UF: μF
P, PF : pF

COILS
MMH: mH
UH : μH

FUSE
MMA: mA

Ref. No.	Part No.	Description
D76	87-027-323	DIODE,ZENER HZ22-2L
D77	87-020-110	DIODE 1SS177
D78	87-020-144	DIODE DBA40C
D79	87-020-110	DIODE 1SS177
D81	87-020-110	DIODE 1SS177
D82	87-020-110	DIODE 1SS177
D83	87-020-110	DIODE 1SS177
D84	87-020-110	DIODE 1SS177
D85	87-020-110	DIODE 1SS177
D86	87-027-431	DIODE,ZENER RD-6.2E
D87	87-020-400	DIODE 1SR35-200
D88	87-020-400	DIODE 1SR35-200
D89	87-020-400	DIODE 1SR35-200
D90	87-020-110	DIODE 1SS177
D91	87-020-110	DIODE 1SS177
D92	87-020-110	DIODE 1SS177
⚠F2	★ 87-035-249	FUSE 1A
⚠F3	★ 87-035-249	FUSE 1A
⚠F4	★ 87-035-254	FUSE 2.5A
J1	★ 87-032-985	SOCKET DIN 8P (PHONO)
J2	87-049-630	JACK 2.5 (CD SYNC)
J3	87-049-450	PIN JACK 4P (CD)(EXCEPT Z)
J4	+++	PIN JACK 4P (AUX)(EXCEPT Z)
J3	87-049-420	PIN JACK 4P (CD)(Z ONLY)
J4	+++	PIN JACK 4P (AUX)(Z ONLY)
J16	+++	PIN JACK 4P (EARTH)(Z ONLY)
J5	87-049-667	PIN JACK 2P (REC OUT)
J6	★ 87-049-659	BP CONNECTOR SOCKET 13P (TUNER)
J7	★ 87-049-659	BP CONNECTOR SOCKET 13P (DECK)
J8	87-049-629	JACK 3.5 (VIDEO SYNC)
J9	87-049-067	JACK 6.3 (MIX MIC)
⚠R185	★ 87-025-393	RES,CEMENT,2W-0.22
⚠R186	★ 87-025-393	RES,CEMENT,2W-0.22
⚠R187	★ 87-025-393	RES,CEMENT,2W-0.22
⚠R188	★ 87-025-393	RES,CEMENT,2W-0.22
⚠R351	★ 87-029-089	RES,FUSIBLE 1/4W-4.7 (U ONLY)
RY1	★ 87-045-258	RELAY
RY1	★ 87-045-251	RELAY G5R-12V (EXCEPT U)
TH1	★ 82-304-722	THERMISTOR 42D26
TH2	★ 82-304-722	THERMISTOR 42D26
TH3	★ 87-026-271	POSISTOR 61AR6.8 (EXCEPT H)
VR9	87-021-922	VOLUME 50KW (BALANCE)
VR10	87-021-921	VOLUME 10KB (MIC VOL.)
		☲☲☲ CONNECTOR CIRCUIT BOARD SECTION ☲☲☲
PCB-B	*	CONNECTOR CIRCUIT BOARD
D93	87-020-400	DIODE ISR 35-200
J11	★ 82-795-613	SP TERMINAL 4P (SPEAKERS)
J13	87-049-507	JACK 3.5 (MIC) (SUR.SP)
J14	87-049-507	JACK 3.5 (MIC) (SUR.SP)
⚠R208	★ 87-029-083	RES,FUSIBLE,1/2W-10
⚠R209	★ 87-029-083	RES,FUSIBLE,1/2W-10
RY2	★ 87-045-258	RELAY G4U-12V
		☲☲☲ JACK CIRCUIT BOARD SECTION ☲☲☲
PCB-C	*	JACK CIRCUIT BOARD
J10	87-049-352	JACK 6.3 W/S (HEAD PHONE)
⚠R206	★ 87-025-154	RES,MF,1W-270
⚠R207	★ 87-025-154	RES,MF,1W-270
		☲☲☲ FRONT CIRCUIT BOARD SECTION ☲☲☲
PCB-D	81-752-620	FRONT CIRCUIT BOARD
C1	★ 87-010-478	CAP,ELECT 33-50V SR

Ref. No.	Part No.	Description
C2	★ 87-010-478	CAP,ELECT 33-50V SR
C3	★ 87-015-688	CAP,ELECT 4.7-35V
C4	★ 87-015-688	CAP,ELECT 4.7-35V
C5	★ 87-018-040	CAP,CERA-SOL S 470P
C6	★ 87-018-040	CAP,CERA-SOL S 470P
C7	★ 87-018-037	CAP,CERA-SOL S 270P
C8	★ 87-018-037	CAP,CERA-SOL S 270P
C11	★ 87-018-042	CAP,CERA-SOL S 680P
C12	★ 87-018-042	CAP,CERA-SOL S 680P
C15	★ 87-018-045	CAP,CERA-SOL 2200P
C16	★ 87-018-045	CAP,CERA-SOL 2200P
C19	★ 87-018-046	CAP,CERA-SOL S 0.0047
C20	★ 87-018-046	CAP,CERA-SOL S 0.0047
C21	★ 87-015-692	CAP,ELECT 0.22-50V
C22	★ 87-015-692	CAP,ELECT 0.22-50V
C25	★ 87-015-694	CAP,ELECT 0.47-50V
C26	★ 87-015-694	CAP,ELECT 0.47-50V
C29	★ 87-015-693	CAP,ELECT 0.33-50
C30	★ 87-015-693	CAP,ELECT 0.33-50
C31	★ 87-015-695	CAP,ELECT 1-50
C32	★ 87-015-695	CAP,ELECT 1-50
C35	★ 87-015-688	CAP,ELECT 4.7-35V
C36	★ 87-015-688	CAP,ELECT 4.7-35V
C38	★ 87-015-688	CAP,ELECT 4.7-35V
C39	★ 87-018-047	CAP,ELECT 33-25V
D1	87-020-110	DIODE 1SS177
D2	87-020-110	DIODE 1SS177
D3	87-020-110	DIODE 1SS177
D4	87-020-110	DIODE 1SS177
D5	87-020-110	DIODE 1SS177
D6	87-020-110	DIODE 1SS177
LED1	★ 87-020-556	LED TLG205 (TAPE)
LED2	★ 87-020-556	LED TLG205 (TUNER)
LED3	★ 87-020-556	LED TLG205 (PHONO)
LED4	★ 87-020-556	LED TLG205 (AUX)
LED5	★ 87-020-556	LED TLG205 (CD)
LED6	★ 87-027-679	LED TLR208 (REC OUT)
LED7	★ 87-027-679	LED TLR208 (DSL)
LED8	★ 87-027-679	LED TLR208 (SURROUND)
LED9	★ 87-027-679	LED TLR208 (MUTING)
LED12	★ 87-020-552	LED TLR208-5 (PEAK)
SW1	87-031-771	TACT SW (TAPE)
SW2	87-031-771	TACT SW (TUNER)
SW3	87-031-771	TACT SW (PHONO)
SW4	87-031-771	TACT SW (AUX)
SW5	87-031-771	TACT SW (CD)
SW6	81-752-625	PUSH SW (REC OUT-GEQ)
SW7	81-752-625	PUSH SW (DSL)
SW8	81-752-625	PUSH SW (SURROUND)
SW9	81-752-625	PUSH SW (MUTING)
VR1	87-021-956	SLIDE VR 20K(B) (40HZ)
VR2	87-021-956	SLIDE VR 20K(B) (125HZ)
VR3	87-021-956	SLIDE VR 20K(B) (330HZ)
VR4	87-021-956	SLIDE VR 20K(B) (1KHZ)
VR5	87-021-956	SLIDE VR 20K(B) (2.5KHZ)
VR6	87-021-956	SLIDE VR 20K(B) (6.3KHZ)
VR7	87-021-956	SLIDE VR 20K(B) (15KHZ)
		☲☲☲ POWER CIRCUIT BOARD SECTION(EXCEPT U)☲☲☲
PCB-E	*	POWER CIRCUIT BOARD
⚠	★ 87-033-147	FUSE CLAMP
⚠F1	★ 87-035-257	FUSE 4A (H ONLY)
⚠F1	★ 87-035-364	FUSE T1.6A (EXCEPT H)

Ref.No.	Part No.	Description
⚠F5	★ 87-035-253	FUSE 2A (H ONLY)
⚠F5	★ 87-035-366	FUSE T2.5A (E,Z ONLY)
⚠J15	★ 87-049-017	AC OUTLET (AC OUTLET)(H ONLY)
⚠J15	★ 87-049-514	AC OUTLET E (AC OUTLET)(E,Z ONLY)
⚠J15	★ 87-049-017	AC OUTLET K (AC OUTLET)(K,G ONLY)
⚠S1	★ 87-031-551	ROTARY SW (AC VOLTAGE)(H ONLY)
		☲☲☲ POWER CIRCUIT BOARD SECTION (U ONLY) ☲☲☲
PCB-E	*	POWER CIRCUIT BOARD
⚠	★ 87-033-147	FUSE CLAMP
⚠F1	★ 87-035-302	FUSE 3.15A
⚠F5	★ 87-035-551	FUSE 2A
⚠J15	★ 87-049-070	AC OUTLET (AC OUTLET)
		☲☲☲ TR CIRCUIT BOARD SECTION ☲☲☲
PCB-F	*	TR CIRCUIT BOARD
		☲☲☲ MISCELLANEOUS ☲☲☲
⚠	★ 87-034-731	AC CORD UL (U ONLY)
⚠	★ 87-034-732	AC CORD H (H ONLY)
⚠	★ 87-034-736	AC CORD E (E,Z ONLY)
⚠	★ 87-034-975	AC CORD K (K,G ONLY)
⚠	★ 87-085-184	AC CORD BUSHING (H ONLY)
⚠	★ 87-085-189	AC CORD BUSHING U (U ONLY)
⚠	★ 87-085-189	AC CORD BUSHING (EXCEPT H,U)
⚠PT1	★ 81-756-606	TRANSFORMER PT (H ONLY)
⚠PT1	★ 81-756-608	TRANSFORMER PT (E,Z ONLY)
⚠PT1	★ 81-756-609	TRANSFORMER PT (K,G ONLY)
⚠PT1	★ 81-756-607	TRANSFORMER PT (U ONLY)

IC handling precaution

IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

1. *Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.*
2. *To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.*
3. *Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.*

⚠ Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications.
Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

***Note;* Combination Circuit Board**

The parts on the *electrical* parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be *supplied separately*. If this becomes necessary, please order the entire circuit board.

Combination circuit board 81-756-610

PCB-A	**81-756-611**
PCB-B	**81-756-613**
PCB-C	**81-756-612**
PCB-E	**81-756-614 (U ONLY)**
PCB-E	**81-756-615 (EXCEPT U)**
PCB-F	**81-756-616**

	Part No.	Description
*	87-010-478	CAP,ELECT 33-50V SR
*	87-015-688	CAP,ELECT 4.7-35V
*	87-015-688	CAP,ELECT 4.7-35V
*	87-018-040	CAP,CERA-SOL S 470P
*	87-018-040	CAP,CERA-SOL S 470P
*	87-018-037	CAP,CERA-SOL S 270P
*	87-018-037	CAP,CERA-SOL S 270P
*	87-018-042	CAP,CERA-SOL S 680P
*	87-018-042	CAP,CERA-SOL S 680P
*	87-018-045	CAP,CERA-SOL 2200P
*	87-018-045	CAP,CERA-SOL 2200P
*	87-018-046	CAP,CERA-SOL S 0.0047
*	87-018-046	CAP,CERA-SOL S 0.0047
*	87-015-692	CAP,ELECT 0.22-50V
*	87-015-692	CAP,ELECT 0.22-50V
*	87-015-694	CAP,ELECT 0.47-50V
	87-015-694	CAP,ELECT 0.47-50V
	87-015-693	CAP,ELECT 0.33-50
	87-015-693	CAP,ELECT 0.33-50
	87-015-695	CAP,ELECT 1-50
	87-015-695	CAP,ELECT 1-50
	87-015-688	CAP,ELECT 4.7-35V
	87-015-688	CAP,ELECT 4.7-35V
	87-015-688	CAP,ELECT 4.7-35V
	87-018-047	CAP,ELECT 33-25V
	87-020-110	DIODE 1SS177
	87-020-110	DIODE 1SS177
	87-020-110	DIODE 1SS177
	87-020-110	DIODE 1SS177
	87-020-110	DIODE 1SS177
	87-020-110	DIODE 1SS177
	87-020-556	LED TLG205 (TAPE)
	87-020-556	LED TLG205 (TUNER)
	87-020-556	LED TLG205 (PHONO)
	87-020-556	LED TLG205 (AUX)
	87-020-556	LED TLG205 (CD)
	87-027-679	LED TLR208 (REC OUT)
	87-027-679	LED TLR208 (DSL)
	87-027-679	LED TLR208 (SURROUND)
	87-027-679	LED TLR208 (MUTING)
	87-020-552	LED TLR208-5 (PEAK)
	87-031-771	TACT SW (TAPE)
	87-031-771	TACT SW (TUNER)
	87-031-771	TACT SW (PHONO)
	87-031-771	TACT SW (AUX)
	87-031-771	TACT SW (CD)
	81-752-625	PUSH SW (REC OUT-GEQ)
	81-752-625	PUSH SW (DSL)
	81-752-625	PUSH SW (SURROUND)
	81-752-625	PUSH SW (MUTING)
	87-021-956	SLIDE VR 20K(B) (40HZ)
	87-021-956	SLIDE VR 20K(B) (125HZ)
	87-021-956	SLIDE VR 20K(B) (330HZ)
	87-021-956	SLIDE VR 20K(B) (1KHZ)
	87-021-956	SLIDE VR 20K(B) (2.5KHZ)
	87-021-956	SLIDE VR 20K(B) (6.3KHZ)
	87-021-956	SLIDE VR 20K(B) (15KHZ)

R CIRCUIT BOARD SECTION(EXCEPT U)===

	*	POWER CIRCUIT BOARD
	87-033-147	FUSE CLAMP
	87-035-257	FUSE 4A (H ONLY)
	87-035-364	FUSE T1.6A (EXCEPT H)

Ref.No.	Part No.	Description
⚠ F5	* 87-035-253	FUSE 2A (H ONLY)
⚠ F5	* 87-035-366	FUSE T2.5A (E,Z ONLY)
⚠ J15	* 87-049-017	AC OUTLET (AC OUTLET)(H ONLY)
⚠ J15	* 87-049-514	AC OUTLET E (AC OUTLET)(E,Z ONLY)
⚠ J15	* 87-049-017	AC OUTLET K (AC OUTLET)(K,G ONLY)
⚠ S1	* 87-031-551	ROTARY SW (AC VOLTAGE)(H ONLY)

=== POWER CIRCUIT BOARD SECTION (U ONLY) ===

PCB-E	*	POWER CIRCUIT BOARD
⚠	* 87-033-147	FUSE CLAMP
⚠ F1	* 87-035-302	FUSE 3.15A
⚠ F5	* 87-035-551	FUSE 2A
⚠ J15	* 87-049-070	AC OUTLET (AC OUTLET)

=== TR CIRCUIT BOARD SECTION ===

PCB-F	*	TR CIRCUIT BOARD

=== MISCELLANEOUS ===

⚠	* 87-034-731	AC CORD UL (U ONLY)
⚠	* 87-034-732	AC CORD H (H ONLY)
⚠	* 87-034-736	AC CORD E (E,Z ONLY)
⚠	* 87-034-975	AC CORD K (K,G ONLY)
⚠	* 87-085-184	AC CORD BUSHING (H ONLY)
⚠	* 87-085-189	AC CORD BUSHING U (U ONLY)
⚠	* 87-085-189	AC CORD BUSHING (EXCEPT H,U)
⚠ PT1	* 81-756-606	TRANSFORMER PT (H ONLY)
⚠ PT1	* 81-756-608	TRANSFORMER PT (E,Z ONLY)
⚠ PT1	* 81-756-609	TRANSFORMER PT (K,G ONLY)
⚠ PT1	* 81-756-607	TRANSFORMER PT (U ONLY)

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board 81-756-610

PCB-A	81-756-611
PCB-B	81-756-613
PCB-C	81-756-612
PCB-E	81-756-614 (U ONLY)
PCB-E	81-756-615 (EXCEPT U)
PCB-F	81-756-616

IC handling precaution

IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.
2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.

⚠ Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications.
Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

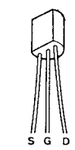
NOTES:

1) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signal .
2) Resistors with no designation have a rated power of 1/8W and a tolerance of ±5%.
3) Capacitors with no designation have a dielectric strength of less than 50WV.
4) The only capacitor tolerance indicated are ±5% (J) and ±10% (K).
5) Ceramic capacitor symbols:
   - For temperature compensation (SL)
   - High dielectric constant system (YY)
   - High dielectric constant system (YW, YP, YZ)
   - Semiconductor ceramic
   - For temperature compensation (SH)
6) Explanation of symbols
   - (M) Mylar capacitor
   - (A) Aluminum solid capacitor
   - (PP) Polypropylene film capacitor
   - (BP) Bi-polarized capacitor
   - (LL) Low-leakage capacitor
   - (T) Tantalum capacitor
   - (S) Styrol capacitor
   - Printed resistor
   - Fuse resistor
   - Nonflammable resistor
   - (LN) Low noise resistor

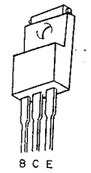
⚠ Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications.
Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

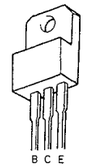
- This schematic diagram is subject to change without notice in the interests of improved performance.



2SK246

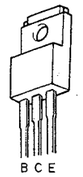


2SB1015
2SD1406



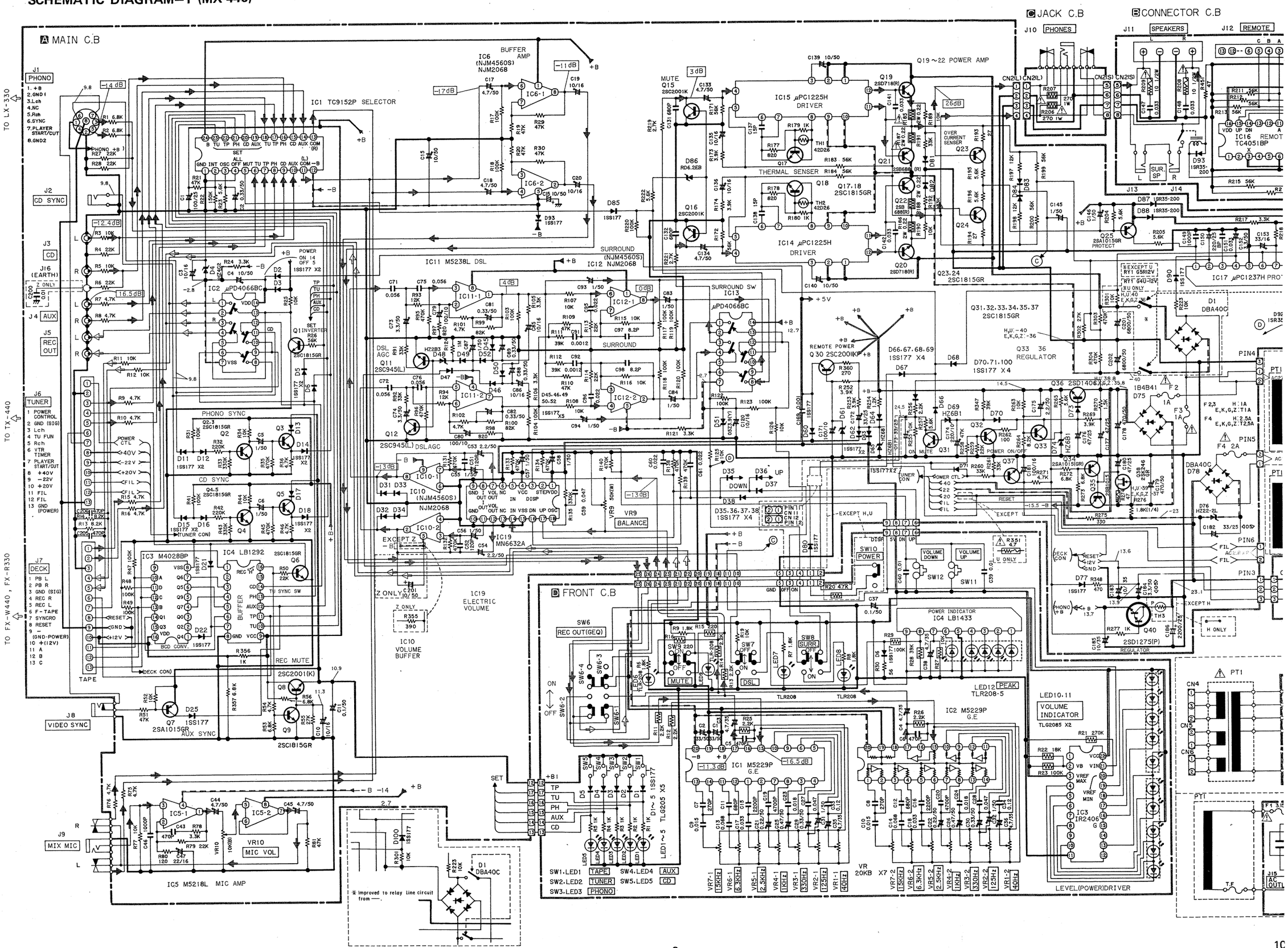
2SB688
2SD718

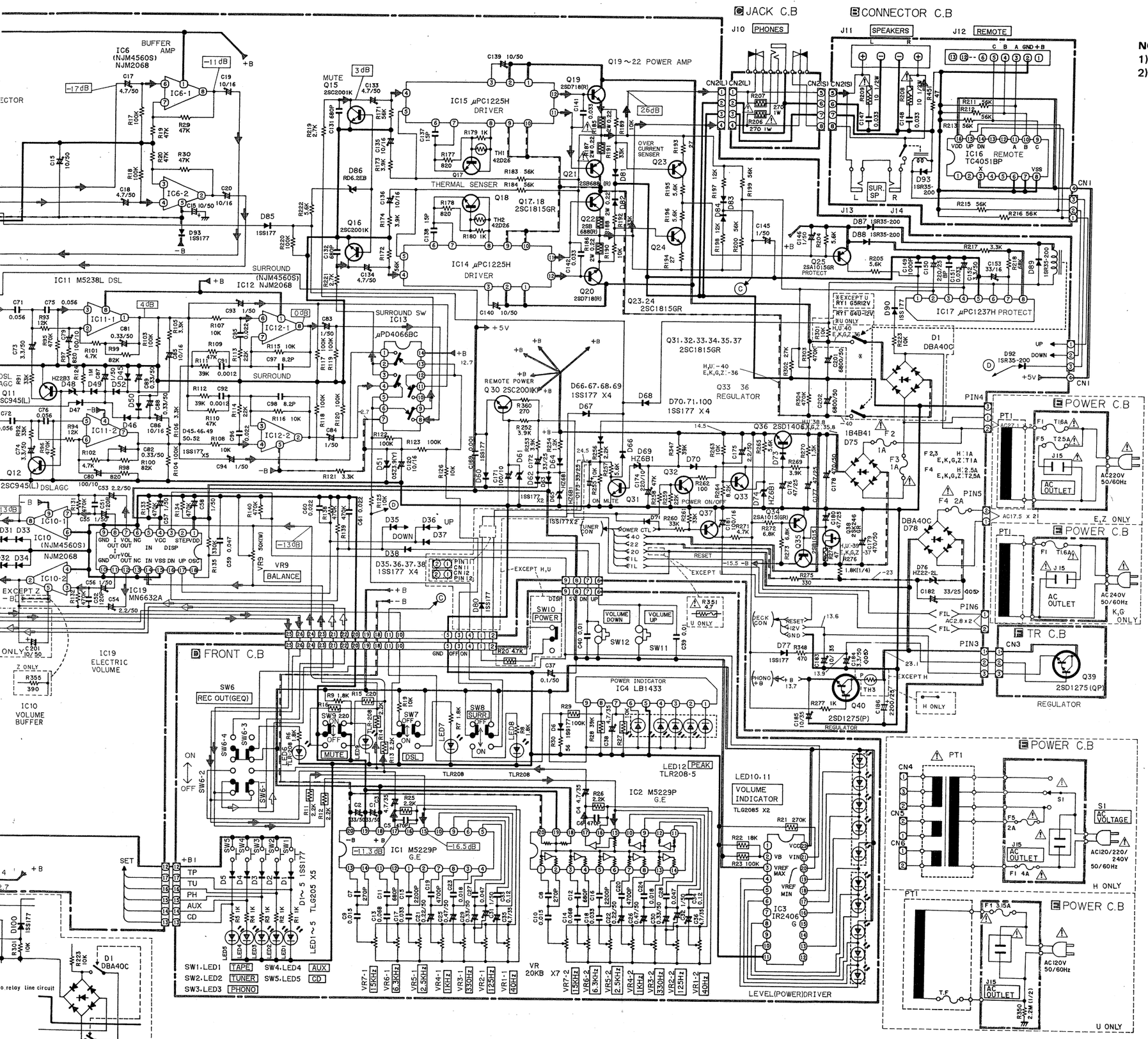
2SA1015
2SC945
2SC1815
2SC2001



2SD1275

SCHEMATIC DIAGRAM–1 (MX-440)

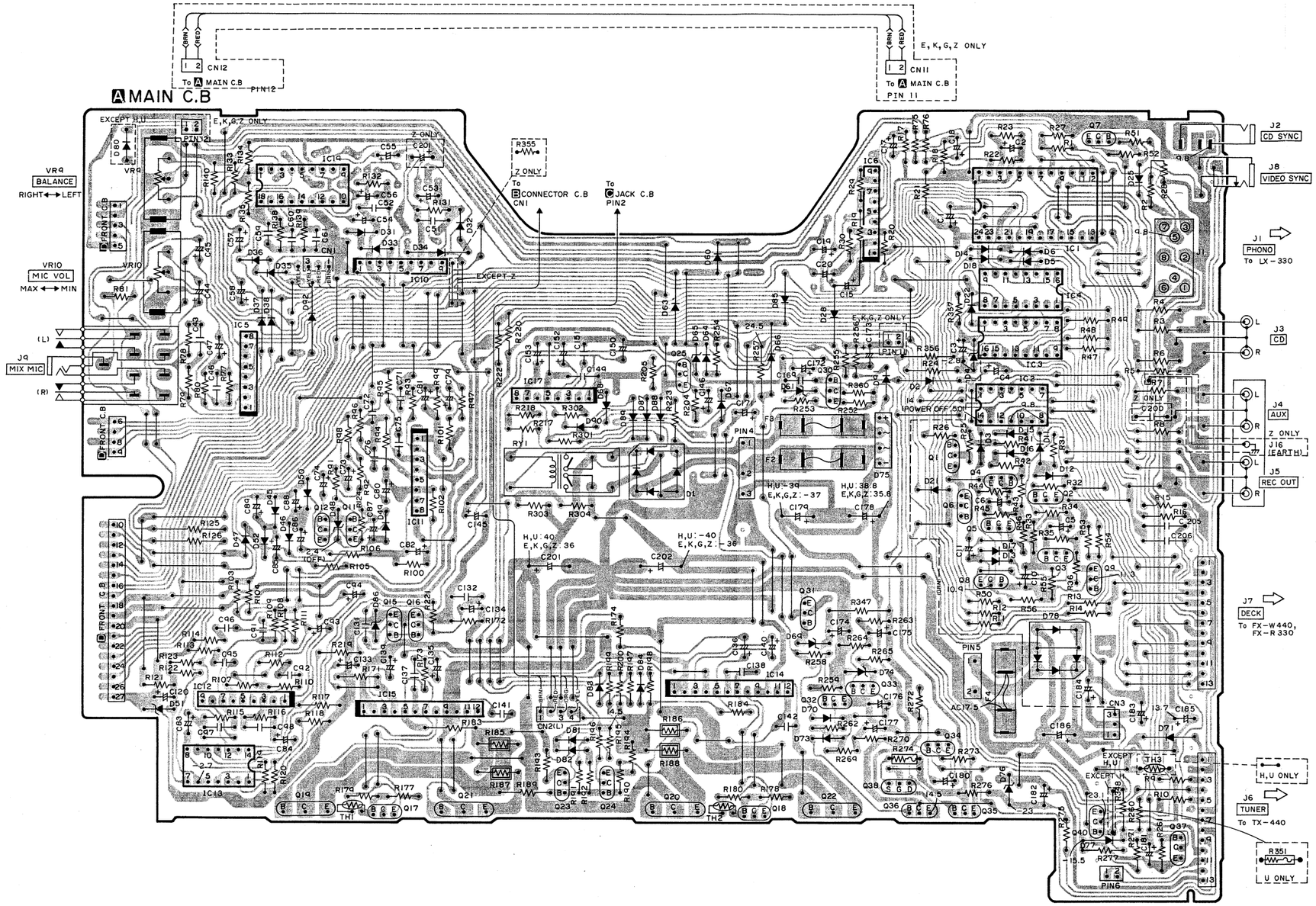




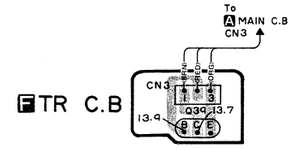
NOTES:

1) B (+) power supply B (–) power supply
2) Signal path
   Rec path

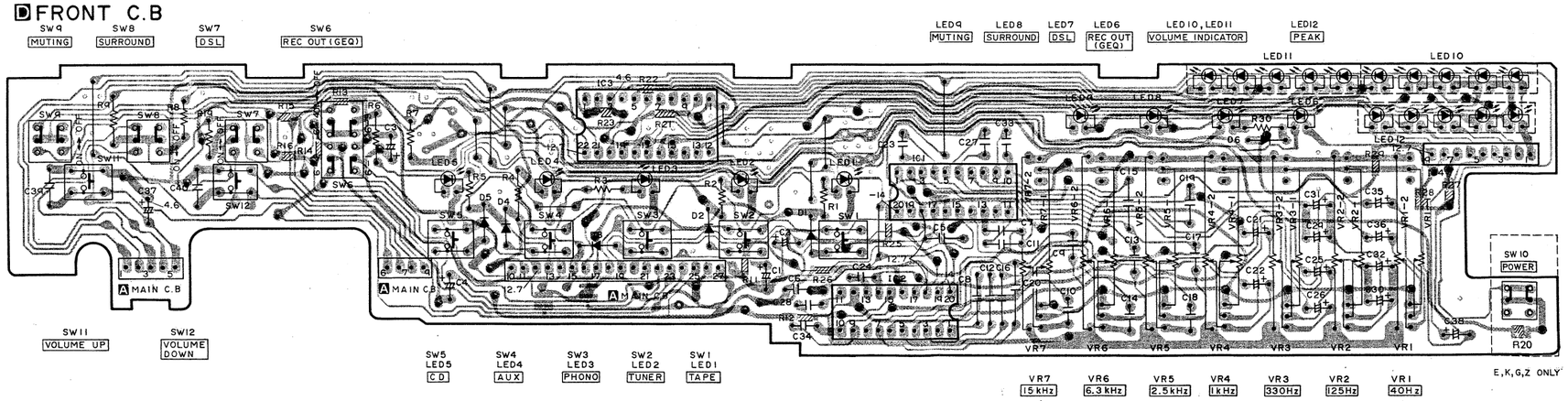
A MAIN C.B

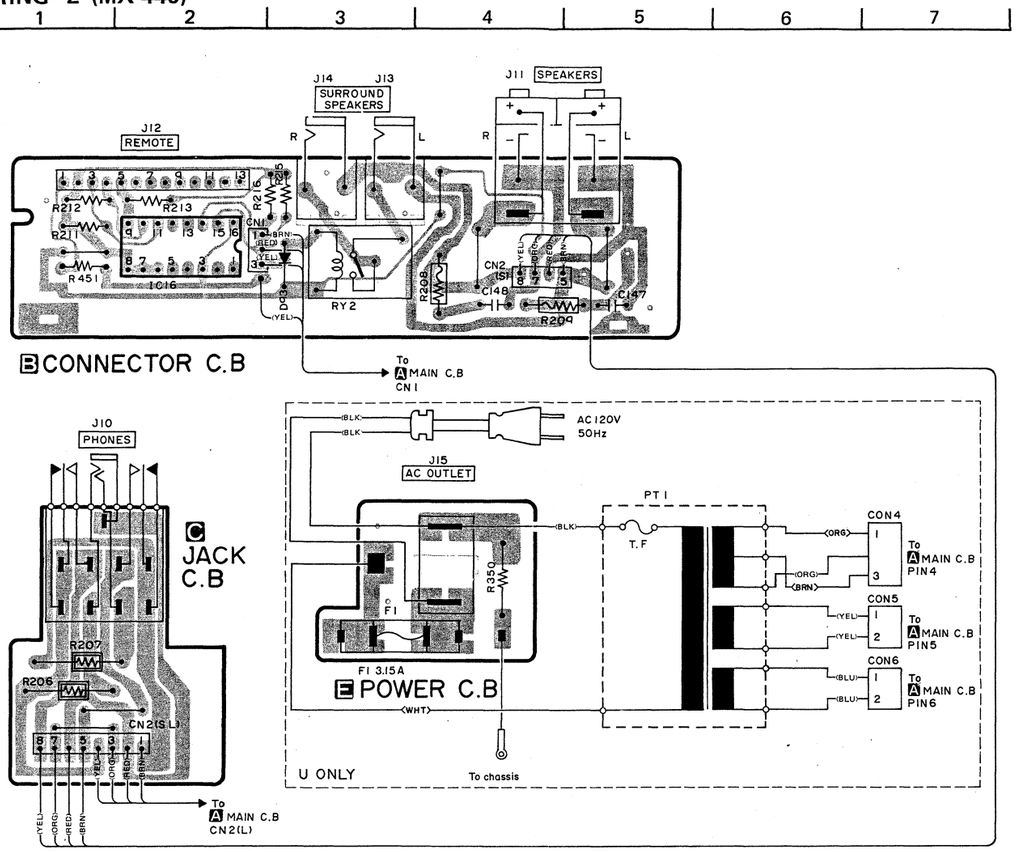


F TR C.B



D FRONT C.B



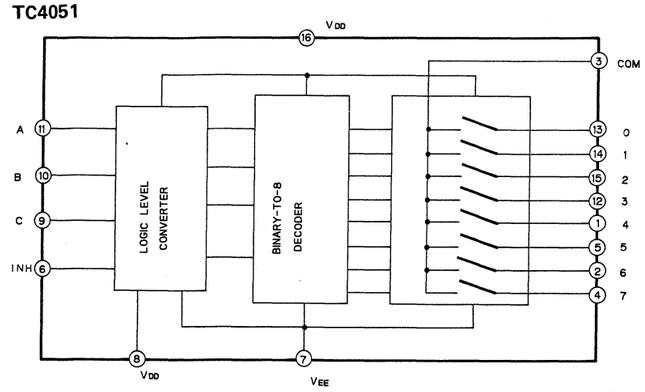


NOTES (1) Printed resistor pattern Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.

• IC BLOCK DIAGRAM

TC4051

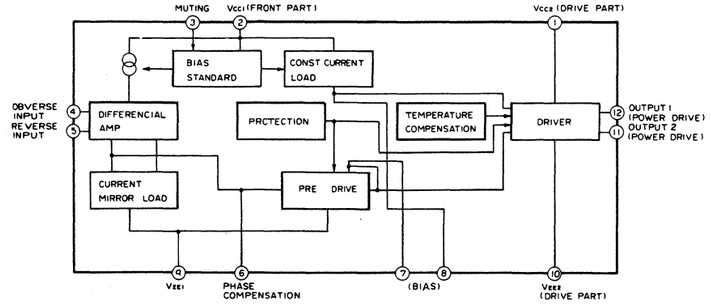


TRUTH TABLE

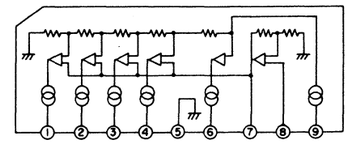
CONTROL INPUTS				"ON" CHANNEL
INHIBIT	C	B	A	
L	L	L	L	0
L	L	L	H	1
L	L	H	L	2
L	L	H	H	3
L	H	L	L	4
L	H	L	H	5
L	H	H	L	6
L	H	H	H	7
H	※	※	※	NOTE

※ Don't Care

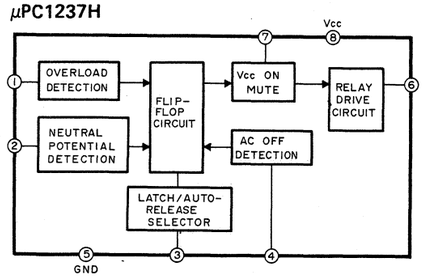
μPC1225H



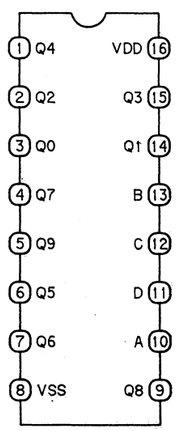
LB1433



μPC1237H



M4028



M4028 BCD TO DECIMAL DECODER

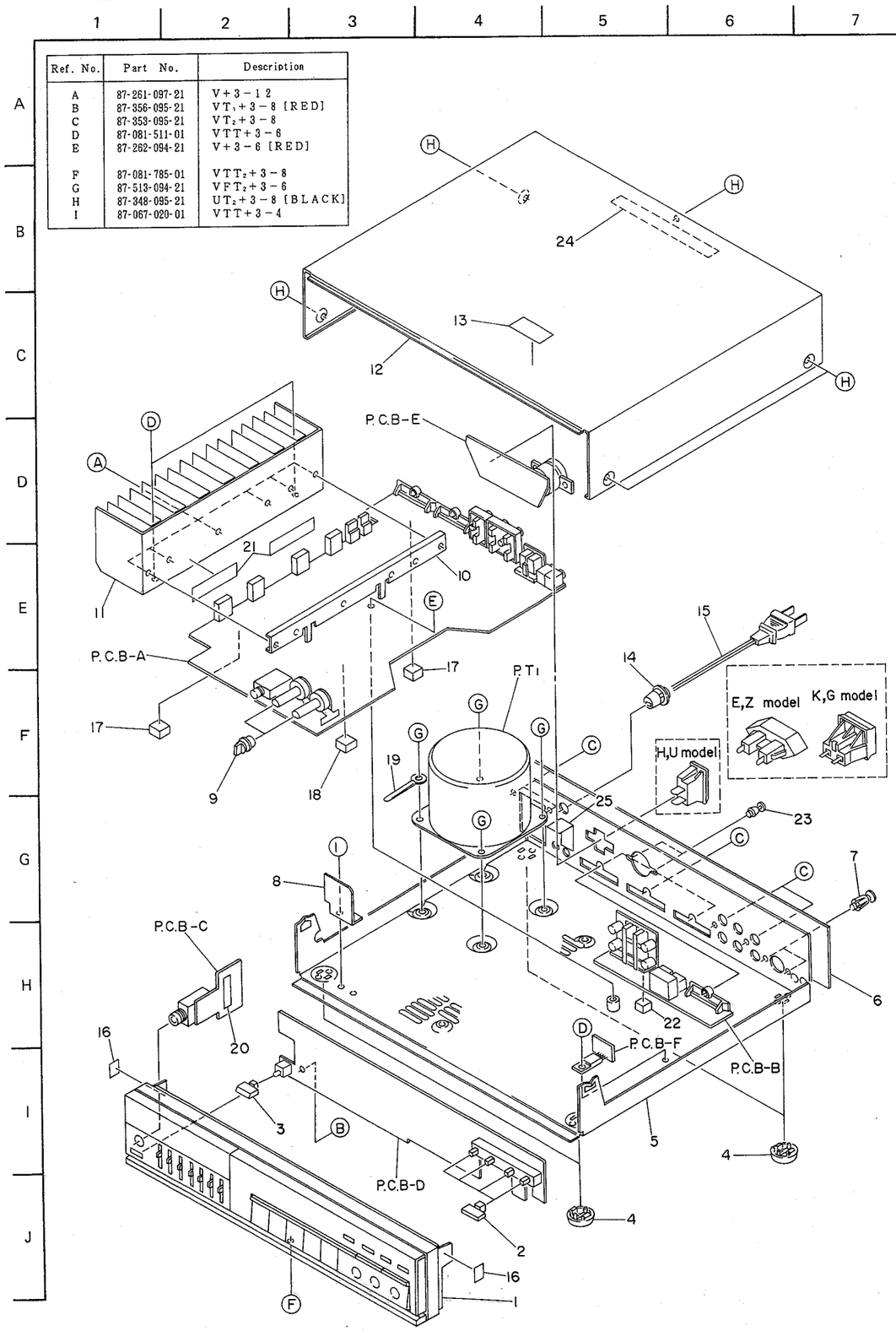
TRUTH TABLE

INPUT				OUTPUT(Q)										FX-R330 function
D	C	B	A	0	1	2	3	4	5	6	7	8	9	
0	0	0	0	1	0	0	0	0	0	0	0	0	0	
0	0	0	1	0	1	0	0	0	0	0	0	0	0	
0	0	1	0	0	0	1	0	0	0	0	0	0	0	
0	0	1	1	0	0	0	1	0	0	0	0	0	0	TAPE. PLAY
0	1	0	0	0	0	0	0	1	0	0	0	0	0	TUNER. REC
0	1	0	1	0	0	0	0	0	1	0	0	0	0	AUX. REC
0	1	1	0	0	0	0	0	0	0	1	0	0	0	CD. REC
0	1	1	1	0	0	0	0	0	0	0	1	0	0	PHONO. REC
1	0	0	0	0	0	0	0	0	0	0	0	1	0	
1	0	0	1	0	0	0	0	0	0	0	0	0	1	
1	0	1	0	0	0	0	0	0	0	0	0	0	0	
1	0	1	1	0	0	0	0	0	0	0	0	0	0	
1	1	0	0	0	0	0	0	0	0	0	0	0	0	
1	1	0	1	0	0	0	0	0	0	0	0	0	0	
1	1	1	0	0	0	0	0	0	0	0	0	0	0	
1	1	1	1	0	0	0	0	0	0	0	0	0	0	

1=HIGH LEVEL 0=LOW LEVEL

EXPLODED VIEW-1

Ref. No.	Part No.	Description
A	87-261-097-21	V+3-12
B	87-356-095-21	VT_1+3-8 [RED]
C	87-353-095-21	VT_2+3-8
D	87-081-511-01	VTT+3-6
E	87-262-094-21	V+3-6 [RED]
F	87-081-785-01	VTT_2+3-8
G	87-513-094-21	VFT_2+3-6
H	87-348-095-21	UT_2+3-8 [BLACK]
I	87-067-020-01	VTT+3-4



MECHANICAL PARTS LIST (MX-440)

- ※-mark in this part list shows exclusive part.
- ★-mark means less required items availabilities may be limited.
- No avalilability part is warked with- - -in Part No. list.

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty
	1	★81-756-005	FRONT CABINET AH2B Ass'y (H, U only)	※	1
		★81-756-030	FRONT CABINET AE2B Ass'y (E, K, G, Z only)	※	1
	2	★81-748-010	PUSH-BUTTON T		4
	3	★84-714-013	BUTTON, POWER (E, K, G, Z only)	DX-770	1
	4	★87-055-057	FOOT B		4
	5	---	AMP. CHASSIS Ass'y		1
	6	---	JACK PLATE		1
	7	★87-084-063	NYLON RIVET ø3.5-5.5		2
	8	---	HOLDER, HP		1
	9	★81-752-014	KNOB	MX-550	2
	10	---	HOLDER, IC		1
	11	---	HEAT SINK Ass'y		1
	12	★81-752-020	STEEL CABINET A (B) (H, U only)	MX-550	1
		★81-752-033	STEEL CABINET T (B) E (E, K, G, Z only)	MX-550	1
	13	---	LABEL, TEMP		1
	14	★87-034-184	CORD BUSHING (H, U only)		1
		★87-034-185	CORD BUSHING (E, K, G, Z only)		1
	15	★87-034-732	AC POWER CORD Ass'y (H only)		1
		★87-034-731	AC POWER CORD Ass'y (U only)		1
		★87-034-736	AC POWER CORD Ass'y (E, Z only)		1
		★87-034-975	AC POWER CORD (K only)		1
		★87-034-735	AC POWER CORD Ass'y (G only)		1
	16	---	SHEET 14-6-0.3		2
	17	---	G CUSHION 5×8×6		2
	18	---	G CUSHION 15-7-6		1
	19	---	WIRE BINDER		1
	20	---	MYLER 7-22		1
	21	★81-752-650	SHEET IC	MX-550	2
	22	---	G CUSHION PCB		1
	23	★87-085-090	NYLON RIVET 3-6.5 (H only)		2
	24	---	INSULATION SHEET H		1
	25	---	INSULATION SHEET E (E, K, G, Z only)		1

■ACCESSORIES/PACKAGE LIST

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	★81-756-904	INSTRUCTION BOOKLET	※	1	
	2	★87-032-845	SIEMENS PLUG		1	